

Amendments to the Specification:

Please delete in its entirety the Summary of the Invention in the application as filed and insert in place thereof the following:

A method for analyzing a time sequence of images. The method:

divides a reference image based on its visual content into:

(a) first spatially fixed areas of each image in the time sequence of images to analyze for detection by selecting in the reference image one or more detection cells collectively comprising a detection zone in which a statistically significant change in one or more predetermined features in the time sequence of images to be analyzed is expected to occur; and

(b) second spatially fixed areas of each image in the time sequence of images to veto a detection of a statistically significant change in one or more predetermined features in the time sequence of images by selecting in the reference image one or more veto cells collectively comprising a veto zone in which any detection in the veto zone of a statistically significant change in one or more predetermined features in the time sequence of images is used to disable any detection of a statistically significant change in the one or more predetermined features in the time sequence of images in the detection zone.

A method for analyzing a time sequence of images. The method:

(a) uses a reference image to position analysis cells in the each image of the time sequence of images; and

(b) divides the reference image based on its visual content into one or more types of analysis cells by:

(i) defining first spatially fixed areas of each image in the time sequence of images to analyze for detection by selecting in the reference image one or more detection cells

collectively comprising a detection zone in which a statistically significant change in one or more predetermined features in the time sequence of images to be analyzed is expected to occur; and

- (ii) defining second spatially fixed areas of each image in the time sequence of images by selecting in the reference image one or more veto cells collectively comprising a veto zone in which any detection in the veto zone of a statistically significant change in one or more predetermined features in the time sequence of images is used to disable any detection of a statistically significant change in the one or more predetermined features in the time sequence of images in the detection zone.

A method for analyzing a time sequence of images. The method:

- (a) uses a reference image to position analysis cells in each image of the time sequence of images; and

- (b) divides the reference image based on its visual content into one or more zones, each of the zones comprising a collection of cells of the same type, the one or more zones comprising:

- (i) first spatially fixed areas of each image in the sequence of images by selecting in the reference image a detection zone comprising one or more detection cells in which a statistically significant change in one or more predetermined features in the time sequence of images to be analyzed is expected to occur; and
 - (ii) second spatially fixed areas of each image in the sequence of images by selecting in the

reference image a veto zone comprising one or more veto cells in which any detection in the veto zone of a statistically significant change in one or more predetermined features in the time sequence of images is used to disable any detection of a statistically significant change in one or more predetermined features in the time sequence of images in the detection zone.

A system for analyzing a time sequence of images. The system has:

a computing device operative to:

divide a reference image based on its visual content into:

(a) first spatially fixed areas of each image in the time sequence of images to analyze for detection by selecting in the reference image one or more detection cells collectively comprising a detection zone in which a statistically significant change in one or more predetermined features in the time sequence of images to be analyzed is expected to occur; and

(b) second spatially fixed areas of each image in the time sequence of images to veto a detection of a statistically significant change in one or more predetermined features in the time sequence of images by selecting in the reference image one or more veto cells collectively comprising a veto zone in which any detection in the veto zone of a statistically significant change in one or more predetermined features in the time sequence of images is used to disable any detection of a statistically significant change in the one or more predetermined features in the time sequence of images in the detection zone.

A computer readable medium having instructions for causing a computer to execute a method for analyzing a time sequence of images, the mixture having a liquid region. The instructions are for:

dividing a reference image based on its visual content

09/871,182
into:

(a) first spatially fixed areas of each image in the time sequence of images to analyze for detection by selecting in the reference image one or more detection cells collectively comprising a detection zone in which a statistically significant change in one or more predetermined features in the time sequence of images to be analyzed is expected to occur; and

(b) second spatially fixed areas of each image in the time sequence of images to veto a detection of a statistically significant change in one or more predetermined features in the time sequence of images by selecting in the reference image one or more veto cells collectively comprising a veto zone in which any detection in the veto zone of a statistically significant change in one or more predetermined features in the time sequence of images is used to disable any detection of a statistically significant change in the one or more predetermined features in the time sequence of images in the detection zone.

Please amend the Description of the Preferred Embodiment(s) in the application as filed as follows:

a) The paragraph that starts at line 15 on page 7 as follows:

As used herein a zone is a collection of possibly connected or disconnected cells of the same type. Thus, for example, Detection cells 30, 32, 34 and 36 form the detection zone. Therefore, at the end of the setup procedure the reference image has one detection zone, one veto zone and one ignore zone and the cells in each zone may or may not be connected to each other.

b) the two paragraphs that start at line 19 on page 10 and end at 6 on page 11 as follows:

Once the cell logic has been applied to every cell C_k in zone m (m =Detect or Veto), the zone detection logic 60 of Figure 5 is applied to those cells. The number of cells with a true status, that is, a cell of status of 1, is determined in block

09/871,182

62. If decision block 64 determines that the count of the number of cells with a cell status of 1,

$$Z_{nm} = \sum_k S_{nmk} ,$$

is greater than threshold β_m then block 66 sets the zone status $T_{nm} = 1$, otherwise block 68 sets the zone status to 0. If the zone status is 1, then the image capture time, t_{nm} , is recorded.

The threshold β_m is set by the user of the method of the present invention.

The alarm logic 70 for the image is shown in Figure 6. If decision block 72 determines that the Detect zone status $T_{n, \text{Detect}} = 0$, then the image status U_n is set to 0 in block 74 and no significant change is indicated. If block 72 determines that $T_{n, \text{Detect}} = 1$, then the veto time period, τ , of block 76 must pass allowing the computation of the veto zone status of future images to be computed.